

REMARKS

STATUS OF THE CLAIMS

Applicants have amended Claims 5 and 20. Applicants have cancelled Claims 26 and 40-52, and thus, the rejections of Claims 26 and 40-52 are moot. Applicants respectfully request reconsideration of pending Claims 1-3, 5-13, 15-24, 27-32, and 34-39.

SPECIFICATION

The Examiner objected to the abstract of the disclosure because of the use of the word “invention” in line 1. Applicants have amended the abstract of the disclosure accordingly. Applicants respectfully request withdrawal of the objection to the abstract.

CLAIM OBJECTIONS

The Examiner rejected Claim 5 due to a typographical error. Applicants have amended Claim 5 as suggested by the Examiner. Applicants respectfully request withdrawal of the objection to Claim 5.

CLAIM REJECTIONS - 35 USC § 102

Independent Claim 1

Claim 1 stands rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2004/0182121 in the name of Fukatsu et al. (“Fukatsu”).

Fukatsu discloses a steering lock device 10 including a lock body 12, a lock stopper 18, a lock bar 28, a steering shaft 38, a helical gear 46, a shaft 48, a cam 60, a worm gear 62, a motor 64, and a rotating shaft 66. As shown in Figure 6A of Fukatsu, a longer flat portion of the cam 60 engages a portion 22 of the lock stopper 18 when the lock bar 28 is engaged with the steering shaft 38. As shown in Figure 6C of Fukatsu, a shorter flat portion of the cam 60 engages the portion 22 of the lock stopper 18 when the lock bar 28 is disengaged from the steering shaft 38. The remainder of the cam 60 between a first end of the longer flat portion and a first end of the

shorter flat portion provides a rounded portion that engages the lock stopper 18, as shown in Figure 6B of Fukatsu. If the cam 60 of Fukatsu were to have a fourth sector, that fourth sector would have to be located between a second end (or beginning) of the longer flat portion and a second end of the shorter flat portion. However, as shown in Figures 1 and 4A-6C of Fukatsu, the intersection between the second end (or beginning) of the longer flat portion and the second end of the shorter flat portion of the cam 60 forms a right angle that does not allow for the cam 60 to have a fourth sector. In other words, the second end (or beginning) of the longer flat portion of the cam 60 is directly adjacent to the second end of the shorter flat portion of the cam 60, leaving no room for a fourth sector.

Accordingly, Fukatsu does not disclose “a fourth sector extending between an end of the second sector to a beginning of the first sector,” as specified by Claim 1. Therefore, independent Claim 1 and dependent Claims 2-3, 5-13, and 15-19 are allowable.

Independent Claim 20

Claim 20 stands rejected under 35 U.S.C. § 102(e) as being anticipated by Fukatsu. Claim 20 specifies “the actuator driving the cam in a single direction to move the lock bolt between the extended and locked position and the retracted and unlocked position.”

As shown in Figures 4A-4C, Fukatsu discloses that the rotating shaft 66 of the motor 64 is rotated counterclockwise (CCW as labeled in Figure 4B) in order to rotate the cam 60 and remove the lock bar 28 from the steering shaft 38. *Fukatsu*, paragraph [0048]. However, as shown in Figures 5A-6C, Fukatsu discloses that the rotating shaft 66 of the motor 64 rotates clockwise (CW as labeled in Figures 5B and 6B) in order to move the lock bar 28 to engage the steering shaft 38 (either by the force of a spring 44 as in Figures 5A-5C or by the force of the spring 44 and the cam 60 as in Figures 6A-6C). *Id.* at paragraphs [0050] and [0052]. Thus, the motor 64 drives the cam 60 in two opposite directions to move the lock bar 28.

Accordingly, Fukatsu does not disclose “the actuator driving the cam in a single direction to move the lock bolt between the extended and locked position and the retracted and unlocked

position,” as specified by Claim 20. Therefore, independent Claim 20 and dependent Claims 21-24, 26-32, and 34-39 are allowable.

Dependent Claims 2-3, 5-10, 15-16, 18-19, 21-24, 27-30, 35-36, and 38-39

Claims 2-3, 5-10, 15-16, 18-19, 21-24, 27-30, 35-36, and 38-39 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Fukatsu. Claims 2-3, 5-10, 15-16, 18-19, 21-24, 27-30, 35-36, and 38-39 depend from Claims 1 and 20, and are therefore allowable for the same reasons set forth above with respect to Claims 1 and 20. Claims 2-3, 7, 9-10, 15-16, 21-24, 28, 30, and 35-36 specify additional patentable subject matter not specifically discussed herein.

Also, Claim 5 specifies “the cam is driven in a single direction to move the lock bolt between the extended and locked positions and the retracted and unlocked position.” Claim 5 is allowable for the reasons discussed above with respect to independent Claim 20. Namely, that Fukatsu discloses moving the lock bar 28 in two opposite directions. Thus, Claim 5 specifies additional patentable subject matter.

In addition, Claims 6 and 27 specify “a controller coupled to the actuator and controlling operation of the actuator via pulse width modulation.” Fukatsu does not disclose the use of pulse width modulation to control the motor 64. Thus, Claims 6 and 27 specify additional patentable subject matter.

In addition, Claims 8 and 29 specify “the first and second sectors are each between 60 and 120 degrees, and the third sector is between 60 and 180 degrees.” However, the cam 60 of Fukatsu appears to include a second sector that is less than 60 degrees and a third sector that is greater than 180 degrees. Thus, Claims 8 and 29 specify additional patentable subject matter.

In addition, Claims 18 and 38 specify “the follower is integral with and extends from the lock bolt.” However, the lock stopper 18 of Fukatsu is a separate component from the lock bar 28. A connecting portion 24 of the lock stopper 18 engages a proximal end 32 of the lock bar 28 via a through-hole 26 of the lock stopper 18. *Fukatsu*, paragraph [0036].

In addition, Claims 19 and 39 specify “the at least one sensor detects the position of the lock bolt by detecting a rotational position of at least one of the cam and the pivot.” Fukatsu discloses a microswitch 80 positioned between the lock bar 28 and a vertical portion 74 of a push part 68. As shown in Figure 1, a switch portion 82 of the microswitch 80 opens and closes the contact and is disposed in the direction facing the vertical portion 74 of the push part 68. *Fukatsu*, paragraph [0047]. As a result, the microswitch 80 only senses the position of the vertical portion 74 of the push part 68, not the cam 60 or the shaft 48. Thus, Claims 19 and 39 specify additional patentable subject matter.

CLAIM REJECTIONS - 35 USC § 103

Dependent Claims 11-13, 17, 31, 32, 34, and 37

Claims 11-13, 17, 31, 32, 34, and 37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukatsu in view of U.S. Patent No. 6,571,587 issued to Dimig et al. or U.S. Patent Application Publication No. 2004/0031299 in the name of Dimig et al. Claims 11-13, 17, 31, 32, 34, and 37 depend from Claims 1 and 20, and are therefore allowable for the reasons set forth above with respect to Claims 1 and 20. Claims 11-13, 17, 31, 32, 34, and 37 also specify additional patentable subject matter not specifically discussed herein.

CONCLUSION

In light of the above, Applicants respectfully request reconsideration and allowance of pending Claims 1-3, 5-13, 15-24, 27-32, and 34-39.

Respectfully submitted,



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